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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/668,291	09/25/2000	Jean-Paul Debalme	1247-0849-6VF	1279

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EXAMINER

LEE, EDMUND H

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

625

<b>Office Action Summary</b>	<b>Application No.</b> 09/668,291	<b>Applicant(s)</b> DEBALME ET AL.	
	<b>Examiner</b> EDMUND H LEE	<b>Art Unit</b> 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2002.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 20-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 20-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

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### DETAILED ACTION

1. Claims 20-26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims introduce new matter into the disclosure. The added material which is not supported by the original disclosure is as follows:

a) the phrase "cooling...by freezing the thermoplastic to form the composite tape" (cl 20, lns 15-16) lacks support in the instant disclosure. The breadth of the above phrase is not supported. The instant specification at lns 13-20 of pg 10 and original claim 1 support cooling the thermoplastic by freezing thus giving the tape its final dimensional characteristics and final appearance. The instant specification does not support freezing the thermoplastic to form a tape and then shaping the frozen thermoplastic tape into its final dimension and appearance as suggested by the breadth of the above phrase.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loubinoux et al (USPN 6294036) in view of Angell, Jr. et al (USPN 5037284) as set forth in the previous Office action mailed 5/22/02.

4. Claims 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loubinoux et al (USPN 6294036) in view of Angell, Jr. et al (USPN 5037284). In regard to claim 20, Loubinoux et al teach the basic claimed process including a process for manufacturing a composite tape based on reinforced fibers and thermoplastic organic material (col 2, ln 10-col 3, ln 40; figs 1-6); entraining yarns based on thermoplastic and reinforcing fibers and bring together the yarns in a parallel and touching manner in the form of a sheet (col 2, ln 10-col 3, ln 40; figs 1-6); heating the sheet in a heating zone wherein the sheet is heated to a temperature reaching at least the melting point of the thermoplastic without reaching the softening temperature of the reinforcing fibers (col 2, lns 10-col 3, ln 40; figs 1-6); introducing the sheet against at least one rotating bar that shapes and centers the touching yarns of the sheet wherein the sheet is maintained at a temperature at which the thermoplastic is malleable and the touching yarns are brought together into a more touching state (col 2, lns 63-66; col 3, ln 66-col 4, ln 28)--as a note, the elimination of the corrugations indicate that the touching yarns were moved into a more touching state; and cooling the sheet in order to consolidate the yarns by freezing (col 5, ln 52-col 6, ln 10; figs 1-6). However, Loubinoux et al does not teach a rotating impregnation device that maintains the temperature of the sheet at a temperature at which the thermoplastic is malleable and distributes the thermoplastic uniformly and impregnates the fibers. Angell, Jr. et al teach a process for manufacturing resin-

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impregnated fiber tows (figs 1-2); using an impregnation station including kneader rolls and nip rolls positioned before a centering roll wherein the kneader and nip rolls cause uniform distribution of the resin and uniform impregnation of the fibers (col 4, lns 18-50; figs 1-2); and heating the kneader rolls and nip rolls to maintain the resin in a molten condition (col 4, lns 42-48; figs 1-6). Loubinoux et al and Angell, Jr. et al are combinable because they are analogous with respect to forming a fiber-reinforced tape/sheet/tow. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to redesign the apparatus of Loubinoux et al to include the kneader rolls and nip rolls of Angell, Jr. et al between the heating zone and at least one rotating bar of Loubinoux et al in order to produce a fiber-reinforced sheet having greater strength and uniformity. In regard to claims 21-26, Loubinoux et al teach providing yarns consisting of continuous glass filaments and continuous thermoplastic filaments which are co-mingled (col 2, ln 10-col 3, ln 40); unreeling a continuous yarn of reinforcing filaments and thermoplastic filaments and regulating the tension of the yarns (col 2, ln 10-col 3, ln 40; col 8, lns 50-60; figs 1-6); passing the sheet (15, 18, or 19) through an additional heating zone (17) after the sheet has passed the impregnation device (fig 2)—as a note, fig 2 clearly shows that the additional heating zone (17) is positioned downstream of the rotating bars (24, 25); winding the fiber-reinforced sheet on a mandrel (col 5, lns 30-33); and cooling the sheet in order to consolidate the yarns by freezing the thermoplastic and set the dimension and appearance of the sheet (col 5, ln 52-col 6, ln 10; figs 1-6). However, Loubinoux et al does not teach stripping static electricity from the yarns before passing the yarns through the heating zone. Such is

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well-known in the molding art in order to prevent the embedment of contamination or eliminate the risk of producing sparks. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to strip any static electricity from the yarns of Loubinoux et al before they are heated in order to ensure a safe molding process and produce a high quality contaminate-free, fiber-reinforced sheet.

5. Applicant's arguments filed 7/25/02 have been fully considered but they are not persuasive. Applicant argues Loubinoux et al does not teach introducing the sheet into a shaping and centering device. Specifically, Applicant argues the heating and rotating bar of Loubinoux et al cannot center the sheet in the manner recited in claim 1 of the present application. First, Applicant's description of the shaping and centering device found in the instant arguments is not relevant because it is not recited in the instant claims. Second, the heating and rotating bar of Loubinoux et al does constitute a shaping and centering device. Contrary to Applicant's argument that "the elimination of corrugations does not imply or necessitate the centering of the sheet," the bar of Loubinoux et al "reorganizes the yarns within the ply and makes it possible to eliminate much or most of the corrugations usually observed after the material having the lower melting point has melted...[the] use of the bar also makes it possible to improve the compactness and surface finish of the sheet obtained." (col 4, lns 22-33) An elimination of corrugations and an improvement of compactness cannot be achieved by creating more space between the yarns. More space between the yarns would create deep pockets between each yarn thus creating corrugations. Also, more space between the yarns would not create a sheet with an improved compactness.

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6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bruning et al (USPN 5425981) teach molding a fiber-reinforced tape by melting a sheet of parallel yarns comprised of co-mingled thermoplastic and reinforcing fibers. Sanada et al (JP 11281860 A) teach stripping static electricity from a fiber before the molding of a fiber ribbon in order to prevent adherence of dust. Hamada et al (USPN 3851456) teach stripping static electricity from fibers in order to prevent sparking.

8. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Examiner Edmund Lee whose telephone number is

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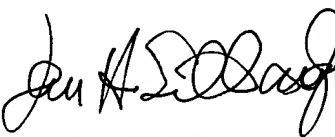
(703) 305-4019. The examiner can normally be reached on Monday- Friday from 8:00 AM to 4:00 PM. The fax number for Examiner Edmund Lee is (703) 872-9615

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jan H. Silbaugh, can be reached on (703) 308-3829.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

EHL

October 18, 2002

  
JAN H. SILBAUGH  
SUPERVISORY PATENT EXAMINER  
ART UNIT 1732

10/19/02